

Amendments to the Claims

1 Claim 1 (currently amended): A computer-implemented method of programmatically generating
2 a class library to represent messages described in a structured language specification, comprising
3 steps of:

4 detecting, during run-time processing of a machine-processable definition of a network-
5 invocable service, a reference to a structured language specification;

6 locating, responsive to the detection, the referenced structured language specification, the
7 structured language specification encoded in a structured markup language and specifying
8 message syntax definitions for one or more messages usable for interacting with the network-
9 invocable service;

10 locating, responsive to the detection, a language-specific template that specifies an image
11 for-generated generating code as a class library for a particular coding language and specifies
12 where corresponding portions of message syntax definitions are to be substituted therein; and

13 generating the code, according to the template and the definitions in the structured
14 language specification, comprising the class library, such that instances of classes specified by
15 the class library are instantiable to be dynamically available for sending request messages to, and
16 receiving response messages from, the network-invocable service, further comprising steps of:

17 locating, in the structured language specification, the message syntax definitions
18 of the messages; [[and]]

19 applying the template to the located message syntax definitions to generate code
20 that, when executed, will build an instance of the message for sending and will, if the message
21 syntax definition for the message specifies parameters, dynamically obtain values for the

22 parameters and set those parameter values in the built instance;
23 applying the template to the located message syntax definitions to generate code
24 that, when executed, will send the built instance of the message, including any set parameter
25 values, to the network-invokable service as a request message;
26 applying the template to the located message syntax definitions to generate code
27 that, when executed, will receive a response to the sent instance of the message from the
28 network-invokable service as a response message and build a response instance therefrom; and
29 applying the template to the located message syntax definitions to generate code
30 that, when executed, will dynamically obtain any defined response values from the received
31 response message and populate the response instance therewith;
32 such that the dynamically-generated code is dynamically invocable during the run-time
33 processing for sending the request messages to, and receiving the response messages from, the
34 network-invokable service.

1 Claim 2 (previously presented): The method according to Claim 1, wherein the structured
2 language specification is a schema.

1 Claim 3 (previously presented): The method according to Claim 1, wherein the structured
2 language specification is a Document Type Definition ("DTD").

1 Claim 4 (original): The method according to Claim 1, wherein the structured markup language is
2 Extensible Markup Language ("XML").

1 Claim 5 (previously presented): The method according to Claim 1, wherein the message syntax
2 definitions specify elements corresponding to the messages and optionally specify attributes
3 corresponding to the elements, the elements and attributes being encoded in the structured
4 markup language.

1 Claim 6 (previously presented): The method according to Claim 5, wherein the message syntax
2 definitions specify, for at least one of the elements, one or more child elements.

1 Claim 7 (previously presented): The method according to Claim 5, wherein the message syntax
2 definitions specify whether the attributes are required attributes.

Claims 8 - 15 (canceled)

1 Claim 16 (currently amended): The method according to Claim 1, further comprising the step of
2 programmatically consulting one or more rules, wherein the rules specify one or more of (1)
3 where the generated code should be stored and (2) a name for a class library comprising the
4 generated code to code, to influence processing of the generating step.

Claims 17 - 19 (canceled)

1 Claim 20 (previously presented): The method according to Claim 1, wherein the network-

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2 invocable service is a web service.

1 Claim 21 (previously presented): The method according to Claim 20, wherein the reference is
2 specified as a Uniform Resource Locator and the machine-processable definition is specified in a
3 Web Services Definition Language document.

Claim 22 - 25 (canceled)

1 Claim 26 (currently amended): A system for programmatically generating a class library to
2 represent messages described in a structured language specification, comprising:

3 means for detecting, during run-time processing of a machine-processable definition of a
4 network-invokable service, a reference to a structured language specification;

5 means for locating, responsive to the detection, the referenced structured language
6 specification, the structured language specification encoded in a structured markup language and
7 specifying message syntax definitions for one or more messages usable for interacting with the
8 network-invokable service;

9 means for locating, responsive to the detection, a language-specific template that specifies
10 an image for ~~generated~~ generating code as a class library for a particular coding language and
11 specifies where corresponding portions of message syntax definitions are to be substituted
12 therein; and

13 means for generating the code, according to the template and the definitions in the
14 structured language specification, comprising the class library, such that instances of classes

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15 specified by the class library are instantiable to be dynamically available for sending request
16 messages to, and receiving response messages from, the network-invokable service, further
17 comprising:

18 means for locating, in the structured language specification, the message syntax
19 definitions of the messages; [[and]]

20 means for applying the template to the located message syntax definitions to
21 generate code that, when executed, will build an instance of the message for sending and will, if
22 the message syntax definition for the message specifies parameters, dynamically obtain values
23 for the parameters and set those parameter values in the built instance;

24 means for applying the template to the located message syntax definitions to
25 generate code that, when executed, will send the built instance of the message, including any set
26 parameter values, to the network-invokable service as a request message;

27 means for applying the template to the located message syntax definitions to
28 generate code that, when executed, will receive a response to the sent instance of the message
29 from the network-invokable service as a response message and build a response instance
30 therefrom; and

31 means for applying the template to the located message syntax definitions to
32 generate code that, when executed, will dynamically obtain any defined response values from the
33 received response message and populate the response instance therewith;

34 such that the dynamically-generated code is dynamically invocable during the run-time
35 processing for sending the request messages to, and receiving the response messages from, the
36 network-invokable service.

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1 Claim 27 (currently amended): A computer program product for programmatically generating a
2 class library to represent messages described in a structured language specification, the computer
3 program product embodied on one or more computer-usable media and comprising:

4 computer-readable program code means for detecting, during run-time processing of a
5 machine-processable definition of a network-invokable service, a reference to a structured
6 language specification;

7 computer-readable program code means for locating, responsive to the detection, the
8 referenced structured language specification, the structured language specification encoded in a
9 structured markup language and specifying message syntax definitions for one or more messages
10 usable for interacting with the network-invokable service;

11 computer-readable program code means for locating, responsive to the detection, a
12 language-specific template that specifies an image for generated generating code as a class library
13 for a particular coding language and specifies where corresponding portions of message syntax
14 definitions are to be substituted therein; and

15 computer-readable program code means for generating the code, according to the
16 template and the definitions in the structured language specification, comprising the class library,
17 such that instances of classes specified by the class library are instantiable to be dynamically
18 available for sending request messages to, and receiving response messages from, the network-
19 invokable service, further comprising:

20 computer-readable program code means for locating, in the structured language
21 specification, the message syntax definitions of the messages; [[and]]

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22 computer-readable program code means for applying the template to the located
23 message syntax definitions to generate code that, when executed, will build an instance of the
24 message for sending and will, if the message syntax definition for the message specifies
25 parameters, dynamically obtain values for the parameters and set those parameter values in the
26 built instance;

27 computer-readable program code means for applying the template to the located
28 message syntax definitions to generate code that, when executed, will send the built instance of
29 the message, including any set parameter values, to the network-invokable service as a request
30 message;

31 computer-readable program code means for applying the template to the located
32 message syntax definitions to generate code that, when executed, will receive a response to the
33 sent instance of the message from the network-invokable service as a response message and build
34 a response instance therefrom; and

35 computer-readable program code means for applying the template to the located
36 message syntax definitions to generate code that, when executed, will dynamically obtain any
37 defined response values from the received response message and populate the response instance
38 therewith;

39 such that the dynamically-generated code is dynamically invocable during the run-time
40 processing for sending the request messages to, and receiving the response messages from, the
41 network-invokable service.